

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
30 June 2005 (30.06.2005)

PCT

(10) International Publication Number
WO 2005/058057 A2

(51) International Patent Classification⁷: **A23G 9/00**

(21) International Application Number:
PCT/EP2004/013414

(22) International Filing Date:
24 November 2004 (24.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03257721.5 9 December 2003 (09.12.2003) EP

(71) Applicant (for AE, AG, AU, BB, BW, BZ, CA, CY, EG, GB, GD, GH, GM, IE, IL, KE, LC, LK, LS, MN, MW, NA, NZ, OM, PG, SC, SD, SG, SL, SZ, TT, TZ, UG, VC, ZA, ZM, ZW only): UNILEVER PLC [GB/GB]; Unilever House, Blackfriars, London Greater, London EC4P 4BQ (GB).

(71) Applicant (for AL, AM, AT, AZ, BA, BE, BF, BG, BJ, BR, BY, CF, CG, CH, CI, CM, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, FR, GA, GE, GN, GQ, GR, GW, HR, HU, ID, IS, IT, JP, KG, KP, KR, KZ, LR, LT, LU, LV, MA, MC, MD, MG, MK, ML, MR, MX, MZ, NE, NI, NL, NO, PH, PL, PT, RO, RU, SE, SI, SK, SN, SY, TD, TG, TJ, TM, TN, TR, UA, UZ, VN, YU only): UNILEVER NV [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

(71) Applicant (for IN only): HINDUSTAN LEVER LIMITED [IN/IN]; Hindustan Lever House, 165/166 Backbay Reclamation, Maharashtra, Mumbai 400 020 (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ALDRED, Alexander [GB/GB]; Unilever R & D Colworth, Sharnbrook,

Bedford, Bedfordshire MK44 1LQ (GB). D'AGOSTINO, Tommaso [IT/GB]; Unilever R & D Colworth, Sharnbrook, Bedford, Bedfordshire MK44 1LQ (GB). EVANS, Nicholas, Charles, Arthur [GB/GB]; NJS Consultants, 44 Deep Spinney, Biddenham, Bedford, Bedfordshire MK40 4QH (GB).

(74) Agents: HUGOT, Alain, Eric, Philippe et al.; Unilever Intellectual Property Group, Patent Department, Colworth House, Sharnbrook, Bedford, Bedfordshire MK44 1LQ (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FROZEN AERATED PRODUCT

(57) Abstract: A self-sustaining log shaped frozen aerated product is produced by cold-extruding a low fat formulation at a temperature between -15°C and -24°C in order to achieve an ice content at -18°C of between 30% and 55%.

WO 2005/058057 A2

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



PCT



(43) International Publication Date
30 June 2005 (30.06.2005)

(10) International Publication Number
WO 2005/058057 A3

(51) International Patent Classification:
A23G 9/14 (2006.01) A23L 1/00 (2006.01)
A23P 1/12 (2006.01)

(21) International Application Number:
PCT/EP2004/013414

(22) International Filing Date:
24 November 2004 (24.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03257721.5 9 December 2003 (09.12.2003) EP

(71) Applicant (for AE, AG, AU, BB, BW, BZ, CA, CY, EG, GB, GD, GH, GM, IE, IL, KE, LC, LK, LS, MN, MW, NA, NZ, OM, PG, SC, SD, SG, SL, SZ, TT, TZ, UG, VC, ZA, ZM, ZW only): UNILEVER PLC [GB/GB]; Unilever House, Blackfriars, London Greater, London EC4P 4BQ (GB).

(71) Applicant (for AL, AM, AT, AZ, BA, BE, BF, BG, BJ, BR, BY, CF, CG, CH, CI, CM, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, FR, GA, GE, GN, GQ, GR, GW, HR, HU, ID, IS, IT, JP, KG, KP, KR, KZ, LR, LT, LU, LV, MA, MC, MD, MG, MK, ML, MR, MX, MZ, NE, NI, NL, NO, PH, PL, PT, RO, RU, SE, SI, SK, SN, SY, TD, TG, TJ, TM, TN, TR, UA, UZ, VN, YU only): UNILEVER NV [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

(71) Applicant (for IN only): HINDUSTAN LEVER LIMITED [IN/IN]; Hindustan Lever House, 165/166 Backbay Reclamation, Maharashtra, Mumbai 400 020 (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ALDRED, Alexander [GB/GB]; Unilever R & D Colworth, Sharnbrook,

Bedford, Bedfordshire MK44 1LQ (GB). D'AGOSTINO, Tommaso [IT/GB]; Unilever R & D Colwor, Sharnbrook, Bedford, Bedfordshire MK44 1LQ (GB). EVANS, Nicholas, Charles, Arthur [GB/GB]; NJS Consultants, 44 Deep Spinney, Biddenham, Bedford, Bedfordshire MK40 4QH (GB).

(74) Agents: HUGOT, Alain, Eric, Philippe et al.; Unilever Patent Group, Colworth House, Sharnbrook, Bedford MK44 1LQ (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
7 December 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FROZEN AERATED PRODUCT

(57) Abstract: A self-sustaining log shaped frozen aerated product is produced by cold-extruding a low fat formulation at a temperature between -15°C and -24°C in order to achieve an ice content at -18°C of between 30% and 55%.

WO 2005/058057 A3

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/013414

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A23G9/14 A23P1/12 A23L1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A23G A23P A23L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, FSTA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 5 919 510 A (FAYARD GILLES ET AL) 6 July 1999 (1999-07-06) examples 13-15	1-4
A,P	CLARKE C: "Making ice cream - it's physical chemistry" RSC EDUCATION AND PROFESSIONAL DEVELOPMENT, [Online] 2003, pages 1-5, XP002280123 Retrieved from the Internet: URL: http://ww.rsc.org/lap/educatio/eic/2003/clarke_jul03.htm [retrieved on 2004-05-13] page 2	1-4

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the International filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

3 March 2005

Date of mailing of the international search report

15/03/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Groh, B

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/013414

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 43 22 702 A1 (C. P. SCHMIDT VERPACKUNGS-WERK GMBH & CO KG, 67663 KAISERSLAUTERN, DE) 12 January 1995 (1995-01-12) figure 1	1-4
Y	----- EP 1 212 948 A (UNILEVER PLC; UNILEVER N.V) 12 June 2002 (2002-06-12) paragraphs [0015], [0016], [0028]	1-4
A	example 1	
Y	----- MARSHALL R T ET AL: "Ice Cream; Fifth Edition" ASPEN PUBL. INC., 2000, pages 22-23,28, XP002278685 GAITHERSBOURG, USA page 27; table 4.1	1-4
X	----- US 4 400 405 A (MORLEY ET AL) 23 August 1983 (1983-08-23) column 4, line 45 - line 68 column 6, line 9 - line 15 column 7, line 27 - line 28 claim 1; example 1	1-4
X	----- JUNG-LIN CHANG ET AL: "CASEIN MICELLES PARTIALLY HYDROLYZED BY CHYMOSIN TO MODIFY THE TEXTURE OF LOWFAT ICE CREAM" JOURNAL OF DAIRY SCIENCE, AMERICAN DAIRY SCIENCE ASSOCIATION. CHAMPAIGN, ILLINOIS, US, vol. 78, no. 12, 1 December 1995 (1995-12-01), pages 2617-2623, XP000580304 ISSN: 0022-0302 page 2618 - page 2619	1-4
A	----- US 4 507 326 A (TARANTINO ET AL) 26 March 1985 (1985-03-26) figures 1,b,5	1-4
A	----- NIELSEN B J: "FORMATION OF THE MICROSTRUCTURE OF ICE CREAM DURING PROCESSING" ICE CREAM AND FROZEN CONFECTIONERY, ICE CREAM ALLIANCE, LONDON, GB, August 1973 (1973-08), pages 727-730, XP009030832 ISSN: 0019-106X the whole document	1-4

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/013414

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5919510	A	06-07-1999	AT 177909 T 15-04-1999
			AU 1471999 A 15-04-1999
			AU 703449 B2 25-03-1999
			AU 3770095 A 30-05-1996
			BR 9505269 A 21-10-1997
			CA 2163284 A1 24-05-1996
			CN 1132595 A ,C 09-10-1996
			CZ 9503076 A3 17-07-1996
			DE 69508529 D1 29-04-1999
			DE 69508529 T2 09-09-1999
			DK 713650 T3 11-10-1999
			EG 20619 A 30-09-1999
			EP 0713650 A1 29-05-1996
			ES 2130520 T3 01-07-1999
			FI 955594 A 24-05-1996
			GR 3030143 T3 31-08-1999
			HU 74491 A2 28-01-1997
			JP 8205783 A 13-08-1996
			KR 244784 B1 02-03-2000
			MA 23723 A1 01-07-1996
			NO 954687 A 24-05-1996
			NZ 280507 A 26-01-1998
			PL 311434 A1 27-05-1996
			RU 2154950 C2 27-08-2000
			SG 35034 A1 01-02-1997
			SK 144495 A3 05-06-1996
			TR 960494 A2 21-07-1996
			ZA 9509682 A 14-05-1997
DE 4322702	A1	12-01-1995	NONE
EP 1212948	A	12-06-2002	EP 1212948 A2 12-06-2002
			AU 772951 B2 13-05-2004
			AU 9145801 A 13-06-2002
			BR 0105782 A 13-08-2002
			CA 2364088 A1 06-06-2002
			TR 200103510 A2 22-07-2002
			US 2002106434 A1 08-08-2002
			ZA 200109660 A 23-05-2003
US 4400405	A	23-08-1983	US 4346120 A 24-08-1982
			US 4400406 A 23-08-1983
			US 4427701 A 24-01-1984
US 4507326	A	26-03-1985	NONE